

Claims

1. A high-pressure pump for a fuel injection system of an internal combustion engine, having a housing (10), located in which is at least one pump element (32) that has a pump piston (34), driven in a reciprocating motion via a transmission element (28) by a drive shaft (12) supported rotatably in the housing (10) via at least one bearing point (14, 16), the drive shaft (12) having an eccentric portion (26) on which the transmission element (28) is rotatably supported via a bearing point (30), characterized in that fuel for lubrication is delivered to the bearing point (30) of the transmission element (28) in the eccentric portion (26) of the drive shaft (12) via a conduit system (54, 55, 57) extending through the drive shaft (12).
2. The high-pressure pump of claim 1, characterized in that the transmission element (28) is supported on the eccentric portion (26) via a bearing bush (58).
3. The high-pressure pump of claim 1 or 2, characterized in that fuel for lubrication is delivered to at least one bearing point (16) of the drive shaft (12) in the housing (10), likewise via the conduit system (54, 55, 60) in the drive shaft (12), and the drive shaft (12) is supported in the housing (10) at the at least one bearing point (16), preferably via a bearing bush (24).
4. The high-pressure pump of claim 2 or 3, characterized in that the bearing bush (22, 24, 58) of the transmission element (28) and/or of the drive shaft (12) is split into two parts, located side by side in the direction of the pivot axis (13) of the drive shaft (12), between which parts there is a gap (23, 25, 59).
5. The high-pressure pump of claim 4, characterized in that the gap (23, 25, 59) between the parts of the bearing bush (22, 24, 58) is located in a plane that is approximately radial to the

pivot axis (13) of the drive shaft (12), in which plane the conduit system (54, 55, 57) discharges at the outer jacket of the drive shaft (12).

6. The high-pressure pump of one of claims 1 through 5, characterized in that the conduit system has a first conduit portion (54), discharging at the outer jacket of the drive shaft (12), into which portion fuel is delivered through a conduit (52) extending in the housing (10); a second conduit portion (55), adjoining the first conduit portion (54) and extending at least substantially in the direction of the pivot axis (13) of the drive shaft (12); and at least one third conduit portion (57), adjoining the second conduit portion and discharging at the outer jacket of the drive shaft (12) at the bearing point (30) of the transmission element (28).

7. The high-pressure pump of claim 6, characterized in that the conduit (52) extending in the housing (10) discharges at a bearing point (14) of the drive shaft (12) at which the drive shaft (12) is supported in the housing (10) via a bearing bush (22); that the first conduit portion (54) in the bearing bush (22) discharges at the outer jacket of the drive shaft (12); and that its communication with the conduit (52) extending in the housing (10) is made through the bearing bush (22).

8. The high-pressure pump of claim 7, characterized in that the bearing bush (22), in its inner jacket, has an annular groove (62), which is located in a radial plane with respect to the pivot axis (13) of the drive shaft (12), in which plane the conduit system (54) discharges at the outer jacket of the drive shaft (12), and which plane preferably communicates with the outer jacket of the bearing bush (22) via at least one bore (64) in the bearing bush (22).

9. A fuel injection system of an internal combustion engine having a high-pressure pump of one of the foregoing claims, characterized in that fuel is delivered to the high-pressure pump (100) by a feed pump (140); a portion of the fuel pumped by the feed pump (140) is delivered to the conduit system (54, 55, 57, 60) via a lubrication connection (170); and a pressure valve

(180), opening toward the conduit system (54, 55, 57, 60), and/or a throttle restriction (190) is preferably located in the lubrication connection (170).